

PSD / NSPS Observations									
Plant Emissions - Criteria Pollutants									
	SO2 (tons)	SO2 % removal	Nx (tons)	CO (tons)	MMT (tons)	PM2.5 (tons)	VOC (lbs)	Particulate (lbs)	Moisture (lbs)
1996	3759	92.28	19688	1080	83	224			
1997	5076	92.05	22678	1291	108	263			4.17
1998	4281	92.67	25708	1321	114	167			2.23
1999	3698	93.57	24179						
2000	3474	93.67	26109	1322	299	191	25204		1.89
5 Year Av	4058	92.8	23672	1265	171	200	25299		2.81
Last 2 yr Av	3586	93.6	25144	1317			25299		2.03
Projected Actuals:	3626		25184	1417	289	1374	10529		2.83
	3513	93.88		1395	284	210	26809		2.23
Plant Operational Data									
	Plant Operation Hours	Efficiency	MMT	Avg Heat Input from Fuel	MMT	LB/MMBtu	SO2 Emissions Rate	Max Pro.	
	Coal Used (tons)	Hours	Coal HV	Avg Heat Input from Fuel	MMT	LB/MMBtu	SO2 Emissions Rate	Max Pro.	
1996	4310562	15359	6657						
1997	5158867	16564	7343	0.37	2738	0.08	613		
1998	5278344	16683	7481	0.41	3082	0.07	513		
1999	5244793	16462	11858		2938	0.06	449		
2000	5283790	16309	11885	0.42	3202	0.06	426		
5 Year Av	5055271	16375	11843	0.39	2905	0.07	458		
Last 2 Year Av	5264292	16386	11872	0.40	3070	0.06	429		
Projected Actuals:	5578473	16386	11843	0.37	2972	0.05	429		
OPERATING CHANGES									
	Actual	Design							
	Max Heat Input	Max Heat Input (MWh/yr)	Fuel Used (ton/yr)	MMT	MMT	MMBtu	MMBtu	MMBtu	MMBtu
Present Operation	7628	8352	52642.2	9564	6.1	875	125,000,000		
Projected Operation	8083	9225	5,578,473	9475	6.9	950	133,000,000		

**ASSUMPTIONS:**  
All increases / decreases based on coal use only. Fuel oil & other bulk chemical chemical use not expected to change.  
Estimated 15% nominal reduction, with new NOx controls, of 2 yr avge NOx and 2854 ton/yr increase in potential NOx formation.  
Estimated 4% nominal removal improvement in scrubber efficiency.  
HAPs PSD triggers calculated per UDAQ Dispersion Modeling Guidelines at R307-410-4.  
VOC's calculated from HAPs list.  
Projected nominal efficiency improvement: 8.0%  
Projected nominal capacity improvement: 8.6%  
Projected heat input / coal usage increase: 5.0%  
Projected uncontrolled NOx increase: 11.2% |

APs / Other Projection Data - COAL		Source Emission (lb/ton)	Pollutant Emission Factor (lb/ton)	Control Device Efficiency (CE) (%)	Table or Eng. Calc.	Actual Emission Factor (EF)	Calculation
Antimony			0.92* C/A*PM)^0.63				E=EF(lbs/10^12 Btu)*Thru_ut_tons)*2000lbs/t
Asenic	12		3.1* C/A*PM)^0.85				E=EF(lbs/10^12 Btu)*Thru_ut_tons)*2000lbs/t
Boron	113		(C/A*PM)		Eng. Calc.(1)		E=EF(lbs/10^12 Btu)*Thru_ut_tons)*2000lbs/t
Cadmium	0.38		1.2* C/A*PM)^0.1				E=EF(lbs/10^12 Btu)*Thru_ut_tons)*2000lbs/t
Cadmium	0.66		3.3* C/A*PM)^0.5				E=EF(lbs/10^12 Btu)*Thru_ut_tons)*2000lbs/t
Cobalt	24		3.7* C/A*PM)^0.58				E=EF(lbs/10^12 Btu)*Thru_ut_tons)*2000lbs/t
Copper	2.9		1.7* C/A*PM)^0.69				E=EF(lbs/10^12 Btu)*Thru_ut_tons)*2000lbs/t
Fluorine	7.8		(C/A*PM)		Eng. Calc.(1)		E=EF(lbs/10^12 Btu)*Thru_ut_tons)*2000lbs/t
Lead	7.1		3.4* C/A*PM)^0.80				E=EF(lbs/10^12 Btu)*Thru_ut_tons)*2000lbs/t
Manganese	9.9		3.8* C/A*PM)^0.60				E=EF(lbs/10^12 Btu)*Thru_ut_tons)*2000lbs/t
Mercury	0.061				31%	Eng. Calc.(2)	2.621 = EF(lbs/10^12 Btu)*Thru_ut_tons)*2000lbs/t
Nickel	4.7		(C/A*PM)^0.8				E=ConCh_(A,m)*Thru_ut_Mtons)*Control_Efficiency
Selenium	2.4				12%	Eng. Calc.(3)	2.286 = EF(lbs/10^12 Btu)*Thru_ut_tons)*2000lbs/t
Vanadium	5.6		(C/A*PM)				E=ConCh_(A,m)*Thru_ut_Mtons)*Control_Efficiency
Uranium	7.4		(C/A*PM)				0.305 = EF(lbs/10^12 Btu)*Thru_ut_tons)*2000lbs/t
							0.403 = EF(lbs/10^12 Btu)*Thru_ut_tons)*2000lbs/t
Organics							
Acena_1,thene			0.00000051 (lbs/ton)				0.00E-01 = EF(lbs/ton)*Thru_ut_tons)
Acena_1,thylene			2.5E-07 (lbs/ton)				0.00E-01 = EF(lbs/ton)*Thru_ut_tons)
Acetaldehyde			0.00067 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Aceto_nonenon			0.000015 (lbs/ton)				0.00E-01 = EF(lbs/ton)*Thru_ut_tons)
Acrolein			0.00029 (lbs/ton)				0.00E-01 = EF(lbs/ton)*Thru_ut_tons)
Anthracene			0.0000021 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Enzene_1,1			3.8 (lbs/10^12 BTU)				E=EF(lbs/ton)*Thru_ut_tons)
Enzo_1,anthracene			8.0E-08 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Enzo_1,ylene			0.0018 (lbs/10^12 BTU)				E=EF(lbs/ton)*Thru_ut_tons)
Benzo_b,kFluoranthene			1.1E-07 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Benzo_h,j_ethylene			2.7E-08 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Benzy chloride			0.0007 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Bi_1,hen			0.000001 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Esi_2-ethylhexyl_1,thalate (DEHP)			0.000001 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Bromoform			0.000001 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Carbon disulfide			0.000001 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Chloroaceto_nonenon			0.000007 (lbs/ton)		AP-42 1.1-13		E=EF(lbs/ton)*Thru_ut_tons)
Chlorobenzene			0.000012 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Chloroform			0.000008 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Chrysene			0.0000021 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Cumene			0.00000053 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Cyanide			0.0025 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
4-Dinitrotoluene			0.00000028 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Imethyl sulfate			0.000048 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Ethyl benzene			0.000094 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Ethyl chlорide			0.000042 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Ethylene dichloride			0.00004 (lbs/ton)				0.00E-01 = EF(lbs/ton)*Thru_ut_tons)
Ethylene dibromide			0.0000012 (lbs/ton)				0.00E-01 = EF(lbs/ton)*Thru_ut_tons)
Fluoranthene			0.00000071 (lbs/ton)				0.00E-01 = EF(lbs/ton)*Thru_ut_tons)
Fluorene			9.1E-07 (lbs/ton)				0.00E-01 = EF(lbs/ton)*Thru_ut_tons)
Formaldehyde			3.0 (lbs/10^12 BTU)				0.00E-01 = EF(lbs/ton)*Thru_ut_tons)
Hexane			0.000067 (lbs/ton)		Eng. Calc.(3)		3.00E+00 = EF(lbs/10^12 Btu)*Thru_ut_tons)*2000lbs/t
Indeno[1,2,3-cd]ylene			6.1E-08 (lbs/ton)		AP-42 1.1-13		0.00E-01 = EF(lbs/ton)*Thru_ut_tons)
Isoparone			0.00058 (lbs/ton)		AP-42 1.1-12		E=EF(lbs/ton)*Thru_ut_tons)
Methyl bromide			0.00016 (lbs/ton)		AP-42 1.1-13		E=EF(lbs/ton)*Thru_ut_tons)
Methyl chloride			0.000001 (lbs/ton)		AP-42 1.1-13		E=EF(lbs/ton)*Thru_ut_tons)
5-Methyl chrysene			0.000002 (lbs/ton)		AP-42 1.1-12		E=EF(lbs/ton)*Thru_ut_tons)
Methyl ethyl ketone			0.000004 (lbs/ton)		AP-42 1.1-13		E=EF(lbs/ton)*Thru_ut_tons)
Methyl hydrazine			0.00017 (lbs/ton)		AP-42 1.1-13		E=EF(lbs/ton)*Thru_ut_tons)
Methyl methacrylate			0.000002 (lbs/ton)		AP-42 1.1-13		E=EF(lbs/ton)*Thru_ut_tons)
Methyl tert butyl ether			0.000035 (lbs/ton)		AP-42 1.1-13		E=EF(lbs/ton)*Thru_ut_tons)
Methyl ne chloride			0.00029 (lbs/ton)		AP-42 1.1-13		E=EF(lbs/ton)*Thru_ut_tons)
Na_1,thalene			0.000013 (lbs/ton)		AP-42 1.1-12		E=EF(lbs/ton)*Thru_ut_tons)
Phenanthrene			0.0000027 (lbs/ton)		AP-42 1.1-12		E=EF(lbs/ton)*Thru_ut_tons)
Phenol			0.000016 (lbs/ton)		AP-42 1.1-13		E=EF(lbs/ton)*Thru_ut_tons)
Pro_1,onaldehyde			0.000038 (lbs/ton)		AP-42 1.1-13		E=EF(lbs/ton)*Thru_ut_tons)
Tyrene			0.0000033 (lbs/ton)		AP-42 1.1-12		E=EF(lbs/ton)*Thru_ut_tons)
Tetrachloroethene			0.000043 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Toluene			1.4 (lbs/10^12 BTU)				0.00E-01 = EF(lbs/ton)*Thru_ut_tons)*2000lbs/t
1,1,1-Trichloroethane			0.000002 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Tyrene			0.000025 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Xylenes			0.000037 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
Methyl acetate			0.0000076 (lbs/ton)				E=EF(lbs/ton)*Thru_ut_tons)
	TOTAL VOCs (t)						
Total PCDD/PCDF							E=EF(lbs/10^12 Btu)*Thru_ut_tons)*2000lbs/t
Acid Gases							
Hydrogen Chloride						3%	E=ConCh_(A,m)*Thru_ut_Mtons)*Control_Efficiency
Hydrogen Fluoride						3%	E=ConCh_(A,m)*Thru_ut_Mtons)*Control_Efficiency
Sulfur Acid			0.0646 (lbs/ton)			4.50%	E=EF(lbs/ton)*Thru_ut_tons)
WASTES: Emissions Calculations							
(1) by ash fraction derivative							
(2) by stack test							
(3) By Emissions Inventory							
(4) By SOG's Method							
Realized HAP emission factor was calculated as:							
To convert t/m to m <sup>3</sup> : TLV(m) X MW / 21.45							
↳ input: Concentration (mg/mic)							
ETF = Emission Threshold Factor (Table IV-2, for various substances >100m)							
TLV = Threshold Limit Values (ACGIH 2001 version)							
E/V = Emission Threshold Value (lb/hr) = TLV / (X ETF)							
TSL = Toxic Screening Level (TLV/z)							
MW = Atomic molecular weight of compound							
VOC = VOC							

INTERMOUNTAIN POWER HP TURBINE DENSE PACK PROJECT						ATTACHMENT
NOI / PSD Calculations						
Operating & Production						
Parameter	Average Value	UoM	Post-Change Value			
Rated Output	875	Mwhe	950			
Fuel Use (Coal)	5,264,292	Tons/yr	5,578,473			
Plant Operating Time	16,386	Unit hours	16,386			
Heat Value	11,872	BTU/lb	11,872			
Heat Input (Actual)	7,628	MMBu/hr	8,083			
Heat Input (Design)	8,352	MMBu/hr	9,225			
Heat Rate	9,564	Btu/KWhr	9,475			
Flow - Stack	125,000,000	scfh	133,000,000			
Emissions				PSD Significance	PSD Major	
Parameter/Pollutant	2 Yr Average Value	UoM	Post-Change Value	Change +/-	Levels	Trigger Value
PSD						
SO2	3586.31	Tons	3513.10	-73.21	40	3626.31
SO2 % Removal	93.62	%	93.88			
NOx	25143.97	Tons	24346.10	-797.87	40	25183.97
CO	1317.06	Tons	1394.60	77.54	100	1417.06
PM10	273.77	Tons	283.51	9.75	15	288.77
Lead	0.087	Tons	0.105	0.018	0.600	0.687
VOC	12.65	Tons	13.40	0.75	40	52.65
Beryllium	0.0010	Tons	0.0011	0.00010	0.0004	0.0014
Mercury	0.081	Tons	0.105	0.024	0.100	0.181
Fluorides (HF)	9.70	Tons	10.16	0.46	3	12.70
Sulfuric Acid	4.06	Tons	4.05	-0.01	7	11.06

<b>INTERMOUNTAIN POWER HP TURBINE DENSE PACK PROJECT</b>				<b>ATTACHMENT 1: Worksheet D</b>			
<b>NOI / PSD Calculations</b>							
<b>Operating &amp; Production</b>							
Parameter	Average Value	UoM	Post-Change Value				
Rated Output	875 Mwhe		925				
Fuel Use (Coal)	5,264,292 tons/yr		5,578,473				
Plant Operating Time	16,386 Unit hours		16,386				
Heat Value	11,872 BTU/lb		11,872				
Heat Input (Actual)	7,628 MMBtu/hr		8,083				
Heat Input (Design)	8,352 MMBtu/hr		9,225				
Heat Rate	9,564 Btu/KWhr		9,475				
<b>Emissions</b>							
Parameter/Pollutant	2 Yr Average Value	UoM	Post-Change Value	PSD Major	Trigger Value	Difference	PSD?
<b>PSD</b>							
SO2	3586.31 Tons		3513.10	40	3626.31	-113.21N	
SO2 % Removal	93.62%		93.88				
NOx	25143.97 Tons		24346.10	40	25183.97	-837.87N	
CO	1317.06 Tons		1394.60	100	1417.06	-22.46N	
PM10	273.77 Tons		283.51	15	288.77	-5.25N	
Lead	173.51 pounds		245.50	1200	1373.51	-1128.01N	
VOC	25299.45 pounds		26808.92	80000	105299.45	-78490.53N	
Beryllium	2.03 pounds		2.76	0.8	2.83	-0.08N	
Mercury	162.23 pounds		210.98	200	362.23	-151.25N	
Fluorides (HF)	19393.97 pounds		20313.00	6000	25393.97	-5080.97N	
Sulfuric Acid	8124.47 pounds		8108.13	14000	22124.47	-14016.33N	
HAPs & Others	2 Yr Average Value	UoM	Post-Change Value	ETV	Trigger Value	Difference	Review?
<b>Metals</b>							
Antimony	35.24 pounds		39.70	0.184	Any Increase	-0.184	
Arsenic	265.59 pounds		285.75	0.001	Any Increase	0.00E-01Y	
Barium	648.66 pounds		814.20				
Beryllium	2.03 pounds		2.23	0.000	Any Increase	-0.00E-01	
Cadmium	68.27 pounds		82.82	0.001	Any Increase	-0.00E-01	
Chromium	529.16 pounds		572.05	0.006	Any Increase	-0.004	
Cobalt	54.64 pounds		62.97	0.007	Any Increase	-0.007	
Copper	42.80 pounds		56.20				
Lead	173.36 pounds		210.39	0.018	Any Increase	-0.016	
Manganese	292.76 pounds		347.20	0.037	Any Increase	-0.033	
Mercury	162.22 pounds		210.98	0.009	Any Increase	-0.006	
Nickel	296.86 pounds		302.84	0.037	Any Increase	-0.036	
Selenium	3214.67 pounds		3213.20	0.074	Any Increase	-0.074	
Vanadium	771.66 pounds		40.35				
Zinc	47.22 pounds		53.32				
<b>Organics</b>							
Acenaphthene	2.68 pounds		2.85				
Acenaphthylene	1.32 pounds		1.39				
Acetaldehyde	3000.65 pounds		3179.73	13.963	Any Increase	-13.952	
Acetophenone	78.96 pounds		83.68	18.084	Any Increase	-18.084	
Acrolein	1526.64 pounds		1617.76	0.071	Any Increase	-0.066	
Anthracene	1.11 pounds		1.17				
Benzene	475.18 pounds		503.33	0.588	Any Increase	-0.586	
Benzo(a)anthracene	0.42 pounds		0.45				
Benzo(a)pyrene	0.23 pounds		0.24				
Benzo(b,j,k)Fluoranthene	0.58 pounds		0.61				
Benzo(g,h,i)perylene	0.14 pounds		0.15				
Benzyl chloride	3685.00 pounds		3904.93	1.905	Any Increase	-1.892	
Biphenyl	8.95 pounds		9.48	0.464	Any Increase	-0.464	
Bis(2-ethylhexyl)phthalate (D)	384.29 pounds		407.23				
Bromoform	205.31 pounds		217.56	1.902	Any Increase	-1.902	
Carbon disulfide	684.36 pounds		725.20	11.460	Any Increase	-11.457	
2-Chloroacetophenone	36.85 pounds		39.05	0.116	Any Increase	-0.116	
Chlorobenzene	115.81 pounds		122.73	16.942	Any Increase	-16.941	
Chloroform	310.59 pounds		329.13	17.968	Any Increase	-17.967	
Chrysene	0.53 pounds		0.56				
<b>HAPs &amp; Others</b>	<b>2 Yr Average Value</b>	<b>UoM</b>	<b>Post-Change Value</b>	<b>ETV</b>	<b>Trigger Value</b>	<b>Change+/-</b>	<b>Review?</b>
Cumene	27.90 pounds		29.57	90.450	Any Increase	-90.450	

Cyanide	13160.73 pounds	13946.18			
2,4-Dinitrotoluene	1.47 pounds	1.56			
Dimethyl sulfate	252.69 pounds	267.77	0.190 Any Increase	-0.189	
Ethyl benzene	494.84 pounds	524.38	159.783 Any Increase	-159.781	
Ethyl chloride	221.10 pounds	234.30	97.110 Any Increase	-97.109	
Ethylene dichloride	210.57 pounds	223.14	14.895 Any Increase	-14.894	
Ethylene dibromide	6.32 pounds	6.69			
Fluoranthene	3.74 pounds	3.96			
Fluorene	4.79 pounds	5.08			
Formaldehyde	375.14 pounds	397.37	0.045 Any Increase	-0.044	
Hexane	352.71 pounds	373.76	648.553 Any Increase	-648.552	
Indeno(1,2,3-cd)pyrene	0.32 pounds	0.34			
Isophorone	3053.29 pounds	3235.51	8.762 Any Increase	-8.751	
Methyl bromide	842.29 pounds	892.56	1.429 Any Increase	-1.426	
Methyl chloride	2790.07 pounds	2956.59	37.997 Any Increase	-37.986	
5-Methyl chrysene	0.12 pounds	0.12			
Methyl ethyl ketone	2053.07 pounds	2175.60	217.037 Any Increase	-217.030	
Methyl hydrazine	694.93 pounds	948.34	0.007 Any Increase	-0.004	
Methyl methacrylate	105.29 pounds	111.57	75.353 Any Increase	-75.353	
Methyl tert butyl ether	184.25 pounds	195.25	53.082 Any Increase	-53.082	
Methylene chloride	1526.64 pounds	1617.76	63.915 Any Increase	-63.909	
Naphthalene	68.44 pounds	72.52	19.294 Any Increase	-19.294	
Phenanthrene	14.21 pounds	15.06			
Phenol	84.23 pounds	89.26	7.082 Any Increase	-7.082	
Propionaldehyde	2000.43 pounds	2119.82			
Pyrene	1.74 pounds	1.84			
Tetrachloroethylene	226.36 pounds	239.87	62.387 Any Increase	-62.386	
Toluene	175.07 pounds	185.44	69.333 Any Increase	-69.332	
1,1,1-Trichloroethane	105.29 pounds	111.57	702.842 Any Increase	-702.842	
Styrene	131.61 pounds	139.46	31.355 Any Increase	-31.354	
Xylenes	194.78 pounds	206.40	159.783 Any Increase	-159.782	
Vinyl acetate	40.01 pounds	42.40	12.958 Any Increase	-12.957	
Total PCDD/PCDF	0.00025 pounds	0.00026			
<b>Acid Gases</b>					
Hydrogen Chloride	96244.72 pounds	100077.81			
Hydrogen Fluoride	19393.97 pounds	20313.00			
<b>ASSUMPTIONS:</b>					
All increases / decreases based on coal use only. Fuel oil & other bulk chemical use not expected to change.					
Estimated 15% nominal reduction, with new NOx controls, of 2 yr average NOx and 2854 ton/yr increase in potential NOx formation.					
Estimated 4% nominal removal improvement in scrubber efficiency.					
HAPs PSD triggers calculated per UDAQ Dispersion Modeling Guidelines at R307-410-4,					
VOC's calculated from HAPs list.					

HP TURBINE DENSE PACK SO2 PROJECTIONS				ATTACHMENT
<del>SO2-00-Averaged-10a.mmbtu</del>				
Inlet	Stack	% reduction		J1/J2 '99-00 aver_a_e
0.7744	0.0494	93.10		1% reduction stack basis mbtu
0.7744	0.0474	93.8760		93.867% reduction (1% increase in scrubber efficiency)
0.7744	0.0204	97.3657		
1999				
Unit One		Unit Two		
Coal Burned (tons)	2,472 213	Coal Burned (tons)	2,772 580	
Heatin_ Value btu/lb	11 858	Heatin_ Value btu/lb	11 858	
Inlet SO2 lbs/mmbtu	0.7963	Inlet SO2 lbs/mmbtu	0.7867	
Stack SO2 lbs/mmbtu	0.0479	Stack SO2 lbs/mmbtu	0.0538	
Inlet Tons SO2	23 343.93	Inlet Tons SO2	25 864.54	
Stack Tons SO2	1 404.21	Stack Tons SO2	1 768.8	2,131.80(EDR)
% Removal (mmbtu)	93.9847	% Removal (mmbtu)	93.1613	
% Removal (tons)	93.9847	% Removal (tons)	93.1613	
% Removal (EDR tons)	93.2899	% Removal (EDR tons)	91.7578	1.40
2000				
Unit One		Unit Two		
Coal Burned (tons)	2 799.081	Coal Burned (tons)	2,484 709	
Heatin_ Value btu/lb	11.885	Heatin_ Value btu/lb	11.885	
Inlet SO2 lbs/mmbtu	0.7712	Inlet SO2 lbs/mmbtu	0.7432	
Stack SO2 lbs/mmbtu	0.0482	Stack SO2 lbs/mmbtu	0.0477	
Inlet Tons SO2	25.655.57	Inlet Tons SO2	21 947.27	
Stack Tons SO2	1,603.47	Stack Tons SO2	1,408.62	1,619.20(EDR)
% Removal (mmbtu)	93.7500	% Removal (mmbtu)	93.5818	
% Removal (tons)	93.7500	% Removal (tons)	93.5818	
% Removal (EDR tons)	92.7692	% Removal (EDR tons)	92.6223	0.96
1999-2000 Average Intermountain Generating Station				
% Removal (mmbtu)	93.6194	Inlet lbs/mmbtu	0.7744	
% Removal (tons)	93.6194	Stack lbs/mmbtu	0.0494	
% Removal (EDR tons)	92.6098			1.01
Dense Pack - Intermountain Generating Station				
REMODIFICATION	1999 - 2000 Average			
Coal Burned (tons)	5,268.249	Coal Burned (tons)	5,578.473	
Heatin_ Value btu/lb	11.871	Heatin_ Value btu/lb	11.871	
Inlet SO2 lbs/mmbtu	0.7744	Inlet SO2 lbs/mmbtu	0.7744	
Stack SO2 lbs/mmbtu	0.0494	Stack SO2 lbs/mmbtu	0.0494	
Inlet Tons SO2	48 430.50	Inlet Tons SO2	51 282.36	57403.69 Actual Projected
Stack Tons SO2	3,089.45	Stack Tons SO2	3,271.37	3,114.41 (EDR Projected)
% Removal (lbs/mmbtu)	93.6209	% Removal (lbs/mmbtu)	93.6209	93.68
POST MODIFICATION (W/Scrubber Modification)				
Tons of SO2 Reduction		4% reduction stack basis mbtu		
130.85		Coal Burned (tons)	5 578.473	
73.15 (EDR Projected)		Heatin_ Value btu/lb	11.871	
		Inlet SO2 lbs/mmbtu	0.7744	
		Stack SO2 lbs/mmbtu	0.04742	
		Inlet Tons SO2	51 282.36	57403.69 Actual Projected
		Stack Tons SO2	3,140.51	3,513.10 (EDR Projected)
		% Removal (lbs/mmbtu)	93.8760	93.88
POST MODIFICATION (W/Scrubber Modification)				
Tons of SO2 Reduction		5% reduction stack basis mbtu		
1,920.44		Coal Burned (tons)	5 578.473	
207.46 (EDR Projected)		Heatin_ Value btu/lb	11.871	
		Inlet SO2 lbs/mmbtu	0.7744	
		Stack SO2 lbs/mmbtu	0.0494	
		Inlet Tons SO2	51 282.36	57403.69 Actual Projected
		Stack Tons SO2	1,350.93	1,514.19 (EDR Projected)
		% Removal (lbs/mmbtu)	97.3657	
NOTES:				
1 Stack SO2 tons calculated from lbs/mmbtu are less than SO2 tons calculated for inlet basis due to gas expansion factor.				
2 Due to stack SO2 tons being calculated from inlet basis, NOx conversion factors were not included.				

**ATTACHMENT 1: Worksheet E****CO Calculations**

<b>Dense Pack - Intermountain Generating Station</b>			
<b>PREMODIFICATION</b>	<b>1999 - 2000 Average</b>	<b>POST MODIFICATION</b>	
Coal Burned (tons)	5,268,249	Coal Burned (tons)	5,578,473
CO E.F. (lb/ton)	0.50	CO E.F. (lb/ton)	0.50
CO Emissons (tons)	1317.06	CO Emissons (tons)	1394.62

Tons of CO increase

77.56

AP-42 Table 1.1-3

**ATTACHMENT 1: Worksheet G**

Unit Operating Hours found in EDR 4th qtr. RTC301

1996 op hrs		1997 op. Hrs	
U1	U2	U1	U2
2060.75	2184	2159	2159.75
2182.5	290	1320	2157.75
2168.75	2169	2144.25	2207
2147.25	2156.5	2208	2208
8559.25	6799.5	7831.25	8732.5

15358.75                    16563.75

1998 op hrs		1999 op. Hrs	
U1	U2	U1	U2
2045.75	1888.25	1312.75	2137
2183.75	1756.5	2126.25	2178.75
2208	2208	2149.5	2145
2184.75	2208	2204.75	2208
8622.25	8060.75	7793.25	8668.75

16683                    16462

2000 op hrs                    16309

**2 yr avg:**                    16385.5

## SCREEN3 Modeling Results - HAP's

Listed compounds exceeded Emission Threshold Values, or had no OSHA values.

POLLUTANT	<u>Calc'd Results</u>	<u>Model Input</u>	<u>Model Output</u>
	Emission Rate (lbs/hr)	Emission Rate (g/s)	Max. Concentration (ug/m3)
Arsenic	0.00123	0.00016	0.00013
DEHP	0.00140	0.00018	0.00015
Cyanide	0.04793	0.00604	0.00507
2,4-Dinitrotoluene	0.0	0.0	0.0
Ethylene Dibromide	0.00002	0.0	0.0
Propionaldehyde	0.00729	0.00092	0.00077
Hydrogen Chloride	0.00998	0.00126	0.00106
Hydrogen Fluoride	0.05611	0.00707	0.00593

### Assumptions:

Point Source  
 Stack Height 219m  
 Stack Diameter 8.6m  
 Gas Volume 2,166,667 acfm  
 Stack Temp 322K  
 Ambient Temp 293K  
 Receptor Height 0m (flat terrain to max distance)  
 Rural Option  
 No Bldg Downwash  
 Simple Terrain (flat terrain to max distance)  
 Full Meteorology  
 Auto Distance Array  
 Terrain Height 0m  
 Min Distance 750m (Property Boundary)  
 Max Distance 100km  
 Distance to Max. Concentration 1117m

**DENSE PACK\_PM10**  
**COAL USAGE CALCULATION SUMMARY**

**ATTACHMENT 1: Worksheet F**

**YEARLY INVENTORY**

<b>5,578,473</b>	Tons coal received Railcar Unloading
5,578,473	Tons of coal fed to both Units
2,789,237	Tons of coal fed to Unit 1
2,789,237	Tons of coal fed to Unit 2
11,800	Coal heating value (Btu/lb)
25.1	Coal pile (acres)
<b>0.0056</b>	Unit 1 Particulate lbs/mmbtu (tsp)
<b>0.0036</b>	Unit 2 Particulate lbs/mmbtu (tsp)

**UNIT 1 FABRIC FILTER PARTICULATE EMISSION (online)**  
**169.5677 TPY Particulate PM10** AP 42 Table 1.1-6

**UNIT 2 FABRIC FILTER PARTICULATE EMISSION (online)**  
**109.0078 TPY Particulate PM10** AP 42 Table 1.1-6

**COAL TRAIN UNLOADING DUST COLLECTORS A,B,C,D**  
**0.0625 TPY Particulate PM10**

**COAL TRUCK UNLOADING DUST COLLECTOR**  
**0.0000 TPY Particulate PM10** Included in train unloading

**COAL RESERVE RECLAIM DUST COLLECTOR**  
**0.0020 TPY Particulate PM10** 10% of Coal Crusher Emissions

**COAL SAMPLE PREPARATION DUST COLLECTOR**  
**0.0000 TPY Particulate PM10**

**COAL TRANSFER BUILDING #1 DUST COLLECTOR**  
**0.0156 TPY Particulate PM10**

**COAL TRANSFER BUILDING #2 DUST COLLECTOR**  
**0.0312 TPY Particulate PM10**

**COAL TRANSFER BUILDING #4 DUST COLLECTOR**  
**0.0195 TPY Particulate PM10**

**COAL CRUSHER BUILDING DUST COLLECTOR**  
**0.0195 TPY Particulate PM10**

**ACTIVE COAL STACKOUT (fugitive)**  
**3.9049 TPY Particulate PM10**

**DUST COLLECTOR 13A & 13B**  
**0.0312 TPY Particulate PM10**

**DUST COLLECTOR 14A & 14B**  
**0.0156 TPY Particulate PM10**

**COAL PILE FUGITIVE EMISSIONS**  
**0.8368 TPY Particulate PM10**

**283.5145 TPY PM10 (COAL ONLY)**

**COMMENTS**

EF found in AP-42 Table 11.19.2-1 site dust collectors for coal, limestone, lime vacuum sys. and soda ash PM10 and PM2.5.

Using same ratio of PM10 to PM2.5 found with emissions at stack.

Use cumulative Mass % <= Stated Size in AP-42 Table 1.1-5 for percentages of PM10 and PM2.5 as a ratio of TSP.

PM10 = 92% of TSP

PM2.5 = 53% of TSP